

PLANNING FOR THE FUTURE OF FRESHWATER IN SOUTHWEST FLORIDA

Stay in touch

The National Estuarine Research Reserve System (NERRS) Science Collaborative is committed to sharing information about the projects we fund in the most effective way we can. Updates about this project will be communicated through nerrs.noaa.gov, webinars, conferences, and meetings. If you would like to stay in touch with this project, contact our program coordinator Cindy Tufts: cindy.tufts@unh.edu

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What's happening?

A multidisciplinary team led by Florida's Rookery Bay National Estuarine Research Reserve (RBNERR) has received an \$815,000 grant for a three-year project to help local communities manage freshwater flows in the Henderson Creek watershed. In consultation with an advisory group consisting of hydrological engineers, social researchers, resource managers, and community stakeholders, the team will generate science to better understand the freshwater flows needed to maintain the health of the watershed's Rookery Bay Estuary and the perspectives of water users and decision makers. As part of this project, investigators will create a framework that stakeholders can use to collaborate and make decisions about water issues into the future.

Why this project?

One of the few pristine, mangrove-forested estuaries in the U.S., the Rookery Bay Estuary is a critical breeding ground for commercial and recreational fisheries like blue crab, stone crab, snook, tarpon and snapper. Each year, thousands of tourists are drawn to its vast expanses of natural space, where they fish, swim, kayak, and experience manatees, dolphins, and coastal birds in their native surroundings. The health of the Estuary and its wildlife depend on seasonally appropriate flows of freshwater that range from nearly 134 million cubic feet per day in the wet season to none in the



Kayakers paddle toward Rookery Bay, where thousands of tourists come to fish, swim, and kayak annually. This project will help communities balance the freshwater needs of people with those of the natural systems on which they depend. *(Courtesy photo: Renée Wilson, RB NERR)*

dry season. These freshwater flows also sustain communities in surrounding Collier County and on nearby Marco Island. Population growth and saltwater intrusion of community and government wells (an increasingly common event in southern Florida) are placing further stress on available freshwater. Compounding the situation are the area's highly managed water control structures and canals that mitigate flooding, but also disrupt the natural sheet flow conditions necessary for estuarine health.

Balancing the water needs of people with those of the natural systems on which they depend for jobs and recreation is becoming an increasing challenge as communities grow and sea levels rise in southwest Florida. This project aims to address this challenge by increasing knowledge of the water flow parameters necessary for estuarine health in Rookery Bay, understanding the attitudes of water users to inform future educational efforts, and developing a community-based decision-making tool for water use and allocation.

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About the funder

The National Estuarine Research Reserve System (NERRS) Science Collaborative puts Reserve-based science to work for coastal communities coping with the impacts of land use change, stormwater, nonpoint source pollution, and habitat degradation in the context of a changing climate. Our threefold approach to connecting science to decision making includes:

- **Funding:** We award an average of \$4 million annually to projects that incorporate collaboration and applied science to address a coastal management problem.
- **Transfer of knowledge:** We are committed to sharing the knowledge generated by the local, place-based research we fund. If you're interested in following this project, contact cindy.tufts@unh.edu.
- **Graduate education:** We sponsor two fellowships in TIDES, a Master's of Science program at the University of New Hampshire (UNH) that provides the skills needed to effectively link science to coastal decision making.

The program operates by a cooperative agreement between UNH and the National Oceanic and Atmospheric Administration.

Learn more at....

[nerrs.noaa.gov/
ScienceCollaborative.aspx](http://nerrs.noaa.gov/ScienceCollaborative.aspx)



One of the few mangrove-forested estuaries remaining in the United States, Rookery Bay Estuary is a critical breeding ground for commercially and recreationally important fisheries, and its ability to perform that service depends on seasonally appropriate flows of freshwater. This project team will conduct a hydrological study of the Estuary and a social science study of stakeholder attitudes and beliefs about the use of freshwater resources. The combined results of these efforts will inform a community-based tool to inform future decisions about freshwater allocation.

(Courtesy photo: Renée Wilson, RBNERR)

What will the science address?

This project will include a hydrological study of the Rookery Bay Estuary and a social science study of stakeholder attitudes towards freshwater allocation and its reservation for estuary use. Objectives of the hydrological work include the following:

- Communicate emerging science to stakeholders and integrate their perspectives and recommendations into the research;
- Develop a local scale hydrodynamic model for the Henderson Creek watershed;
- Establish research-based recommendations for freshwater target flows and reservations;
- Analyze probable freshwater inflow quantity and timing of water management project scenarios;
- Identify “ready to permit” structural projects to restore Henderson Creek to near historic natural conditions.

The social science will address the following three questions:

- What attitudes toward water do members of communities around Rookery Bay hold, and how do they describe these attitudes?
- What role does water play in the every day lives of these individuals, both personally and professionally?
- How do these individuals make water-related decisions in their personal and professional contexts?

The first phase of this work includes a review of the relevant literature including governmental and NGO documents addressing water-related policies, peer-reviewed articles on water management research, and scholarly and professional literature addressing theories and best practices associated with water-related conflicts and community decision-making. This review will inform future data collection and analysis and the design of a collaborative community process to make decisions about freshwater allocation and reservations in the future.